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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,789	04/21/2004	Robert Mariani	02104CIP (3600-419-01)	5079

7590 12/14/2006  
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EXAMINER
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MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/828,789

Applicant(s)

MARIANI, ROBERT

Examiner

Ngoclan T. Mai

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27,49,50,52,53,56,57,66,75,85 and 88-90 is/are pending in the application.
- 4a) Of the above claim(s) 57,66,75,85 and 88-90 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27,49 and 50 is/are allowed.
- 6) ☒ Claim(s) 1-3,5-18,25, 26, 52 and 56 is/are rejected.
- 7) ☒ Claim(s) 4,19-24 and 53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/9/05, 7/12/04</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Preliminary amendment*

1. Preliminary amendment filed 4/21/05 has been entered. In the preliminary amendment Applicants canceled claims 28-48, 54-55, 58-65, 67-74, 76-84, and 86-87. Currently claims 1-27, 49-53, 56-57, 66, 75, 85, 88-90 are pending.

### *Election/Restrictions*

2. This application contains claims directed to the following patentably distinct species:

a) method of sintering valve metal, sintered valve metal and capacitor, (claims 1-27, 49-50, 52-53 and 56).

b) valve metal powder and sintered valve metal body having certain characteristic when sintered at 800 C for 6 hrs (claims 57, 66, 85, 88-89).

c) sintered valve metal body having shrinkage diameter of 0.5% or less with an initial press density of 5.5 g/cc. (claim 75), and

d) method of making capacitor anode from basic lot valve metal, (claim 90).

The species are independent or distinct because they are not depend or unrelated to one another.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic

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claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. During a telephone conversation with applicant's attorney Luke Kilyk on Dec. 8 a provisional election was made with traverse to prosecute the invention of group I, claims 1-27, 49-50, 52-53 and 56. Affirmation of this election must be made by applicant in replying to this Office action. Claims 57, 66, 75, 85, 88-90 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-3, 6, 9, 11-13, 16-18, 25 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall (Pat 2,675,310).

Hall disclosed consolidating of metal powder to form dense coherent metal by pressing to consolidate the metal enough to handle and heating the pressed shape in a mixture of oxygen-free gases (col. 1, lines 28-32), wherein the oxygen-free gases include a halogen such as iodine (col. 3, lines 38-47). The metal disclosed includes tungsten, molybdenum, tantalum, and titanium (col. 1, lines 9-19). Note that all of those read on the claimed valve metal.

As for claim 2, Hall disclose sintering at a temperature at which a reversible reaction occurs, combining the formation and deposition of the metal halide, col. 3, lines 26-32. The reversible reaction therefore includes metal halide and metal at the same time.

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As for claim 6, the Hall teaching sintering in low pressure, such as from 50 microns to not more than 10 mm of mercury. The lower range of the sintering pressure (10 mm as compare to 760 mm for atmospheric pressure) reads on the claimed vacuum.

As for claim 13, Hall teaches the sintering temperature for Mo is 950 C and 1200 C for W, col. 7, lines 41-44. Hall therefore teaches sintering at temperature less than about 1200 C as recited in the claim.

As for claim 17, Hall teaches sintering for about 2 hours, see Hall, claim 6. As for claims 16 and 18 since the process of the prior art is performed at the sintering temperature and pressure as well as employing the starting material as disclosed by the claims in the instant application, the prior art process would expected to include predominate sintering mechanism as recited in the claim 16 and the condition as recited in claim 18.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

As for claim 52 since no anodization is disclosed the sintering is done before any anodization step.

6. Claims 1-2, 5-6, 9-16, 18, 25 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Diez (3,540,663).

Diez teaches employing solid iodine as grinding aid to mill meal powder to form fine powder and sintering the fine metal powders containing iodine by heating in a vacuum, col. 1, line 40 to col. 2, lines 53. Diez teaches the metal can be niobium and tantalum, col. 2, lines 5-12.

As for claims 11 and 12, Diez teaches the iodine and metal iodine, (i.e., tantalum iodine or niobium iodine depending on metal powder to be treated) will sublime from the surface of the metal leaving

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substantially no contamination in the product, col. 2, lines 47-54. As for claim 13-15 Diez teaches the temperature to effectively remove the iodine vary from 20 to 600 C, col. 2, lines 60-64. As for claims 16 and 18 since the process of the prior art is performed at the sintering temperature and pressure as well as employing the starting material as disclosed by the claims in the instant application, the prior art process would expected to include predominate sintering mechanism as recited in the claim 16 and the condition as recited in claim 18.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

As for claim 52 since no anodization is disclosed the sintering is done before any anodization step.

7. Claims 1-2, 9, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 30314747 or Japanese Kokai Patent Application No. Hei 3[1991]-197640.

The reference discloses a method of heating tantalum as valve in the present of iodine at 300-700 C to form  $TaI_5$  and then  $TaI_5$  is decomposed at 800-1500 C to form tantalum and iodine, page 5, lines 3-5.

8. Claims 1-3, 6-16, 18, 25 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishizawa et al. (U.S. Patent No. 4,720,300)

Nishizawa discloses a process for producing niobium metal comprising heat-treating niobium metal in the present of iodine, col. 1, line 65 to col. 3, line 33. Note that the treating niobium with heat reads on the claimed sintering.

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As for claim 2, a valve metal-iodine compound form along with the sintered valve metal, see col. 1, line 66 to col. 2, line 7.

As for claims 3 and 6, iodine is supplied as vapor or gas and the operation is done under vacuum, see col. 4, lines 20-31.

A for claim 7-8, Nishizawa teaches employing collecting pot to collect niobium iodide, col. 4, lines 6-9.

As for claims 9-12, Nishizawa teaches valve metal can be niobium or tantalum and the valve metal iodine compound therefore can be NbI<sub>5</sub> or TaI<sub>5</sub>, see col. 1, line 66 to col. 2, line 4.

As for claims 13-15, the heat treating is occurred at temperature vary from 200 to 800 C, col. 2, line 36-44 and col. 3, lines 27+. As for claims 16 and 18, since the process of the prior art is performed at the same sintering temperature as disclosed by the applicant, the prior art process would expected to include predominate sintering mechanism as recited in the instant claims.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

As for claim 52 since no anodization is disclosed the sintering is done before any anodization step.

### ***Claim Rejections - 35 USC § 103***

9. Claims 13-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 30314747 or Japanese Kokai Patent Application No. Hei 3[1991]-197640.

The reference does not specifically disclose sintering at temperature less than about 1200 As recited in claim 13, about 350-900 C recited in claim 14 and about 450 to 850 recited in claim 15.

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However since the reference discloses sintering at temperature that is overlapping those recited by the claim, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select any portion of range, including the claimed range, from the broader range disclosed in a prior art reference because the prior art reference finds that the prior art composition in the entire disclosed range has a suitable utility. --- Note: Even if a reference teaches a preferred range within a broader range, it still does not "teach away" from the claimed invention. See MPEP 2123. Furthermore, in view of the overlapping in composition, the sintered material taught by the prior art would be expected to possess the same properties of applicant's claimed 16 and 18. See *In re Best*, 195 USPQ 430. To distinguish over prior art, applicant needs to demonstrate (e.g. by comparative test data) that the more narrowly claimed ranges for the alloying constituents are somehow critical and productive of new and unexpected results.

10. Claims 17, 26, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa et al.

Nishizawa is silent about the sintering time as recited in claim 17, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to determining the optimum sintering time to carry the process of the prior art. Note that [W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation." See *In re Alers*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d (Fed.cir), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Furthermore, the specification contains no disclosure of either the critical nature of the claimed sintering time range or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable

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recited in the claim, the applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d, 1575, 16 USPQ2d, 1934 (Fed. Cir. 1990).

Nishizawa et al is silent about capacitor formed by the sintered valve metal recited in claim 26 or anodizing the sintered valve metal recited in claim 56. However is well known in the art to form capacitor from sintered valve metal having high purity by anodizing sintered valve metal, see Shekhter et al (U.S. Patent No. 6,171,363, col. 10, lines 10-12). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the purified niobium powder of Nishizawa into capacitor by anodizing the prior art sintered valve metal.

11. Claims 3, 19-24 and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


12. claims 27, 49 and 50 are allowable.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ngoclan T. Mai  
Examiner  
Art Unit 1742

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

July 3, 1951

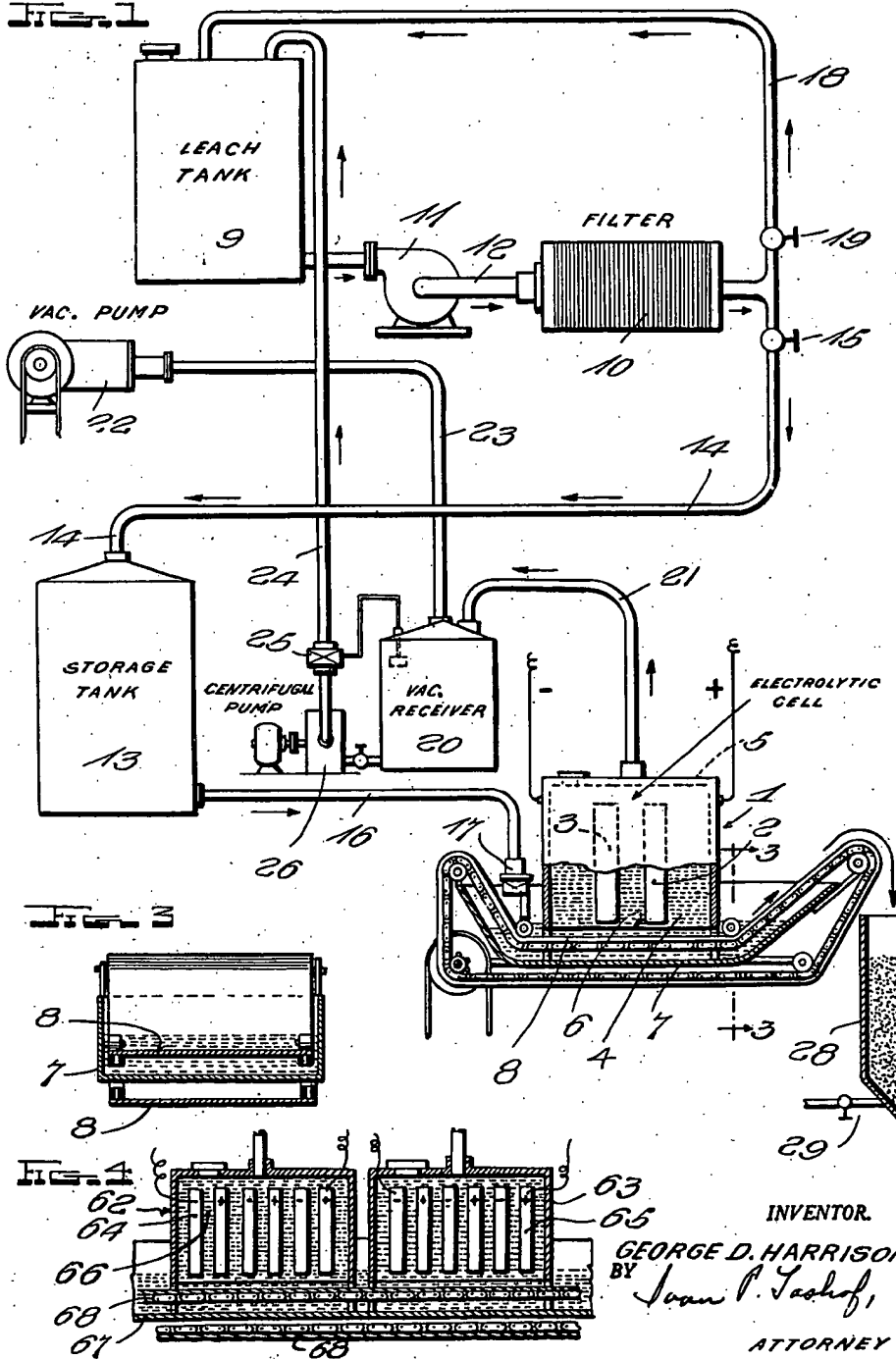
G. D. HARRISON

2,558,750

PRODUCTION OF DIVIDED METALS

Filed July 19, 1943

2 Sheets-Sheet 1



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July 3, 1951

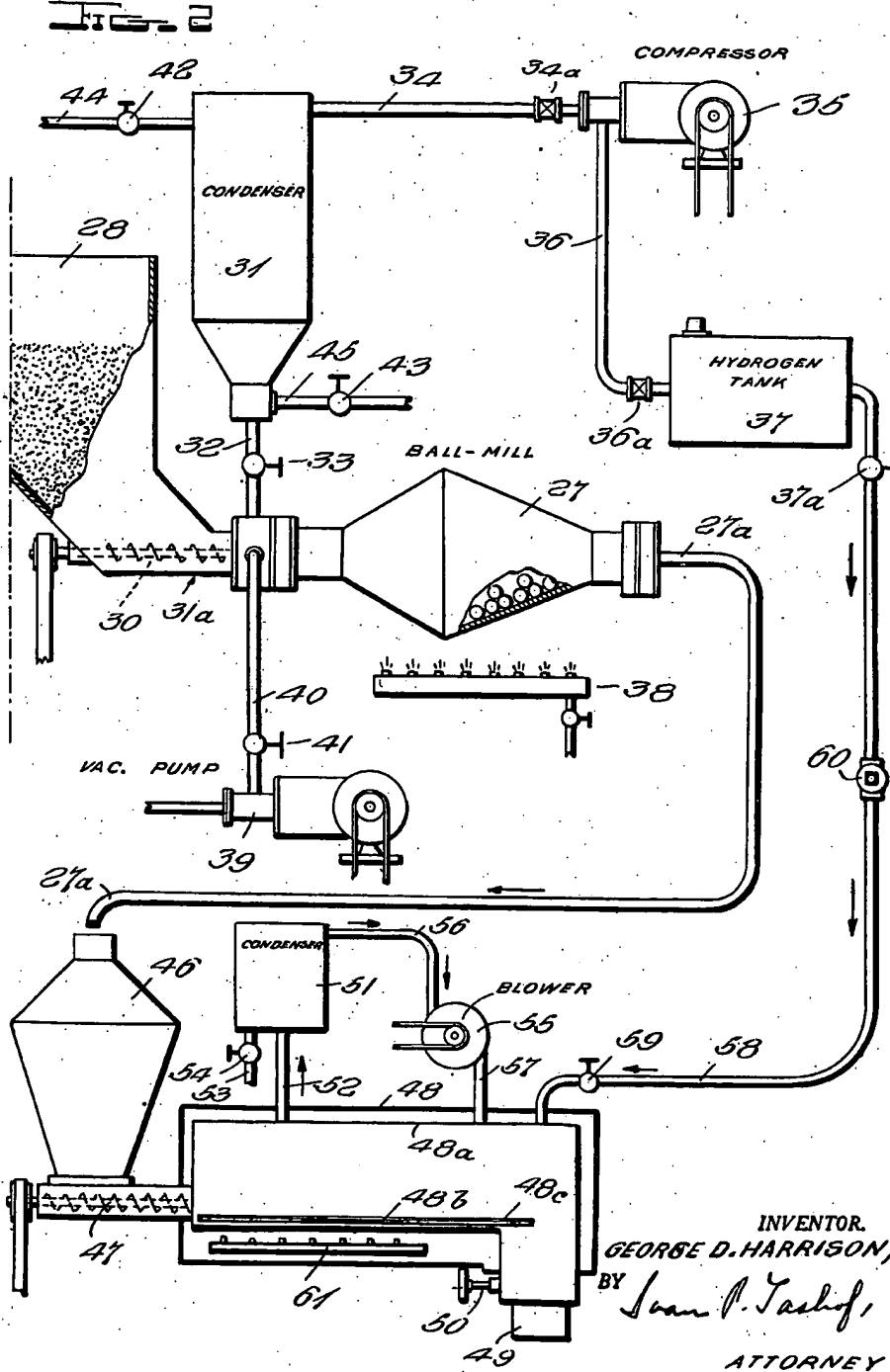
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2,558,750

PRODUCTION OF DIVIDED METALS

Filed July 19, 1943

2 Sheets-Sheet 2



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